



From Nurture to Knowledge: Connecting the Dots of Parenting Styles with Adults' Temperament and Academic Success

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ABSTRACT

Background: Healthy parenting results in the healthy physical and psychological development of adults. It means that influence on healthy parenting results in enthusiastic, innovative, optimistic, achievement-oriented, or career-focused adults. In contrast, depressive, pessimistic, low self-esteem, and low achievement-oriented adults had a basis of poor or unhealthy parenting style. As adults grow into an adult, their personality gets sharpened with time. The basics of their personality result in their out or underperformance in their personal and professional life.

Objective: The current study focused on this developmental basis concerning adult temperament and academic achievement. It focuses on how different parenting styles affect temperament and academic achievement.

Methods: These constructs were measured among a random sample of 272 university students using the Parental Authority Questionnaire and the Adult Temperament Questionnaire.

Results: The correlation analysis indicated that authoritative parenting positively relates to effortful control, extraversion, and academic achievement, while it is negatively associated with negative affect and orienting sensitivity. In the context of authoritarian parenting, negative affect and orienting sensitivity are positively associated, while effortful control, extraversion, and academic achievement are negatively associated it. Alternatively, permissive parenting only had a negative relationship with extraversion. Similarly, multiple regression results indicated that authoritative parenting significantly impacts negative affect, effortful control, and academic achievement.

Conclusion and Implications: Authoritarian parenting significantly impacts negative affect and effortful control and permissive parenting only impacts effortful control. These findings had significant implications in the respective areas of measured constructs.



Introduction and Literature Review

Human development is shaped by various biological, psychological, and social influences, with parenting playing a central role in shaping an individual's emotional, cognitive, and behavioral outcomes. Parenting practices significantly impact the trajectory of an individual's development, influencing their emotional intelligence, academic achievements, and long-term personality traits (Someya et al., 2000). The theoretical foundation on how one makes sense of these influences comes from parenting styles, which have been studied at length as to whether or not they influence personality development and academic achievement (Cherry, 2011; Wolfradt et al., 2003). Baumrind (1971) labeled the three primary parenting styles as authoritative, authoritarian, and permissive. All these styles have different impacts on the social, emotional, and academic development of children and therefore, it is important to examine their long-term impacts (Adlakha et al., 2018).

Authoritarian parenting is defined by strict control, strict discipline, and high expectations and is likely to produce obedience but also fear, low self-esteem, and restricted autonomy in children. Authoritarian children have more fear, less confidence, and school anxiety because of the overcontrolling behavior of parents (Jovrić & Simić, 2024). This parenting style inhibits kids from giving their opinions and making personal choices, and they lack intrinsic motivation and perform poorly in school. Authoritative parenting, through the combination of warmth and control, permits autonomy, freedom of expression, and security of emotions. There is evidence for the reality that kids brought up under authoritative parents grow with high self-esteem, better emotional regulation, and quality study motivation, and they ultimately achieve well in school (Krejrová et al., 2023). On the other hand, very permissive parenting with little control and too much freedom has been associated with impulsiveness, self-confidence, and the absence of persistence since they have a negative influence on school discipline and decision-making capacity (Goodman & Gurian, 1999).

Other than parenting, temperament is a building block of personality development. Temperament is the individual's tendency towards emotional reactivity and self-regulation, both determined by genes and the environment (Rothbart & Bates, 2006). Temperament has been addressed in the past through various models, including the Greek humorism model of personality, where personality traits were linked to fluids in the body (Zuckerman, 1995). Modern research quantifies temperament as dispositional processes of attention, emotion regulation, and individual sensitivity to environmental stimulation (Rothbart et al., 2000). Rothbart and Evans (2007) also distinguished temperament into four main dimensions: Negative Affect (fear, distress, and sadness), Extraversion (social interaction, positive emotions), Effortful Control (regulation of attention and behavior), and Orienting Sensitivity (sensitivity to perception and associative learning).

Parenting styles were found to be a source of temperament, which then influences the child's long-term adjustment. Thomas and Chess (1956) had established a positive correlation between parenting behavior and temperamental psychosocial difficulties. Parenting styles can foster the development of suitable temperament or enable maladaptive tendencies, thereby affecting social accommodation and academic performance (Thomas & Chess, 1977). For example, kids subjected to overprotective parenting would likely have fearful temperaments as well as social withdrawal patterns, which are sustained into adulthood and influence their psychological well-being (Kiel & Buss, 2011). Further, maternal warmth and control have been established as determining factors in the formation of healthy emotional regulation and the alleviation of children's anxiety symptoms (Laukkanen et al., 2014).

Academic success is another essential outcome affected by temperament and parenting. Academic success is the level of accomplishment in school life. Academic success is enhanced because of a secure environment, good interpersonal relationships, and self-regulation (Steinberg et al., 1989). Experiments always result to show that authoritative parenting creates emotional safety, self-regulation, and cognitive openness, all the predictors for greater school achievement (Spera, 2005). In contrast, authoritarian parenting, where strict control and obedience are highlighted, will be most likely to weaken academic motivation and creativity and lead to weak academic performance (Baumrind, 1991; Chao, 2001). Permissive parenting, with a similar shortage of structure and regulation, has also been connected with academic disengagement and poor time management ability and, ultimately, submaximal educational achievement (Sun et al., 2024).

Ainsworth and Bowlby's (1991) attachment theory is a development of what has been known about the connection between children's development and parenting. Secure attachment, created through sensitive and emotionally available parent-child interaction, promotes cognitive and emotional development, according to the theory. Securely attached children also tend to have more positive self-esteem, more competent problem-solving abilities, and higher academic achievements than insecurely attached children (McLeod, 2007). Moreover, the Goodness of Fit model (Thomas & Chess, 1977) also assumes that the psychological adjustment and academic success of a child depend on the child's adjustment with the environment demands and the child's temperament. As long as the parenting style is compatible with the temperament of a child, the child adapts and gets flexible, hence more academic success and self-fulfillment (Gibson, 2014; Schoppe-Sullivan et al., 2007).

Empirical research also identifies the complex interconnection among parenting, temperament, and success. Evidence suggests that children brought up by authoritative parents possess stronger problem-solving skills, goal orientation, and internal motivation, all of which support learning (Berk, 2012). Children brought up by authoritarian parents have greater stress, failure apprehension, and intellectual risk avoidance, which are barriers to education (Yasmin et al., 2014). Similarly, permissive parenting, which is unstructured and undisciplined, tends to result in lower academic persistence and poor handling of their school affairs (Xu, 2007).

Therefore, the importance of knowing these dynamics is most applicable in schools, where the impact of parenting on school performance is generally undervalued. Knowing the role of parenting styles in shaping students' academic motivation and temperament gives teachers, policymakers, and parents useful information to create supportive learning environments. Universities can use these conclusions in program design that engages parents in their children's education to foster cooperation between schools and families. Parents similarly stand to gain much from sensitization programs that illustrate the long-term impact of parental practices on their children's psychological and intellectual development.

Aims and Objectives

The main aim of this research is to analyze the connection between parenting styles, sub-factors of adult temperament, and academic performance with the intention of constructing those which possess the highest correlations. This research also aims to establish the extent to which different parenting styles and temperament characteristics influence the academic performance of students either positively or negatively. Through the investigation of these connections, the research endeavors to offer a perspective on the manner in which parenting styles determine students' temperament development and thereby their success academically in the university context.

Research Hypotheses

Mainly, it was hypothesized that there is a significant relationship between different parenting styles, temperament sub-components, and academic achievement (H1). Furthermore, all parenting styles are expected to have a significant impact on temperament sub-components and students' academic performance (H2). Specifically, it is hypothesized that the authoritative parenting style will have a significant negative impact on negative affect temperament (H2a), while the authoritarian parenting style will have a significant positive impact (H2b), and permissive parenting will have a significant negative impact on negative affect temperament (H2c). Additionally, authoritative parenting is expected to have a significant positive impact on effortful control temperament (H2d), whereas both authoritarian (H2e) and permissive (H2f) parenting styles will have a significant negative impact on effortful control. Concerning extraversion temperament, authoritative parenting is hypothesized to have a significant positive impact (H2g), authoritarian parenting a significant negative impact (H2h), and permissive parenting a significant negative impact (H2i). For orienting sensitivity, authoritative parenting is expected to have a significant negative impact (H2j), while authoritarian (H2k) and permissive (H2l) parenting styles will have a significant positive impact. Moreover, it is proposed that parenting styles will significantly impact the academic achievement of university students (H2m), and temperaments will also significantly influence academic achievement (H2n).

Method

Participants

This study involved students from the Islamia University of Bahawalpur. Participants were selected based on the total population of the university, using Krejcie and Morgan's sampling guidelines (as cited in Gay, 2000). A sample size of 272 undergraduate, graduate and postgraduate male and female adults aged 18-34 years, were recruited. Demographic details, such as age, gender, number of siblings, birth order, socioeconomic status (SES), and parental education, were recorded.

Sampling Procedures

A multistage sampling technique (following Fan, 2001; Rahman et al., 2022) was employed. In the first stage, departments were selected randomly, dividing the population into five strata. In the second stage, students from each department were selected using proportional stratified random sampling.

Measures

Parenting style was measured using the Parental Authority Questionnaire (PAQ), which assesses permissive, authoritarian, and authoritative styles through 30 items rated on a 5-point Likert scale (Buri, 1991). Adult temperament was assessed by the Adult Temperament Questionnaire (ATQ), consisting of 77 items on a 7-point Likert scale, which measured elements of negative affect, extraversion, effortful control, and orienting sensitivity (Rothbart & Evans, 2007). Academic functioning was assessed by participants' GPA or equivalent scores on their prior test. ATQ was translated into Urdu for this purpose.

Research Design

Quantitative, correlational study design was employed to examine the correlation between variables, i.e., parenting practices, temperaments, and academic achievement among university students. Cross-sectional survey design through self-report questionnaires was employed for data

gathering. This design was suitable for the examination of the correlation between variables without manipulation to enable naturally occurring patterns in data to be examined (Fraenkel & Wallen, 2009). The application of standardized instruments such as the PAQ and ATQ allowed the research to measure parental styles and temperament features into numbers, while participants' GPA served to measure academic achievement/success.

Procedure

The study was carried out in two phases:

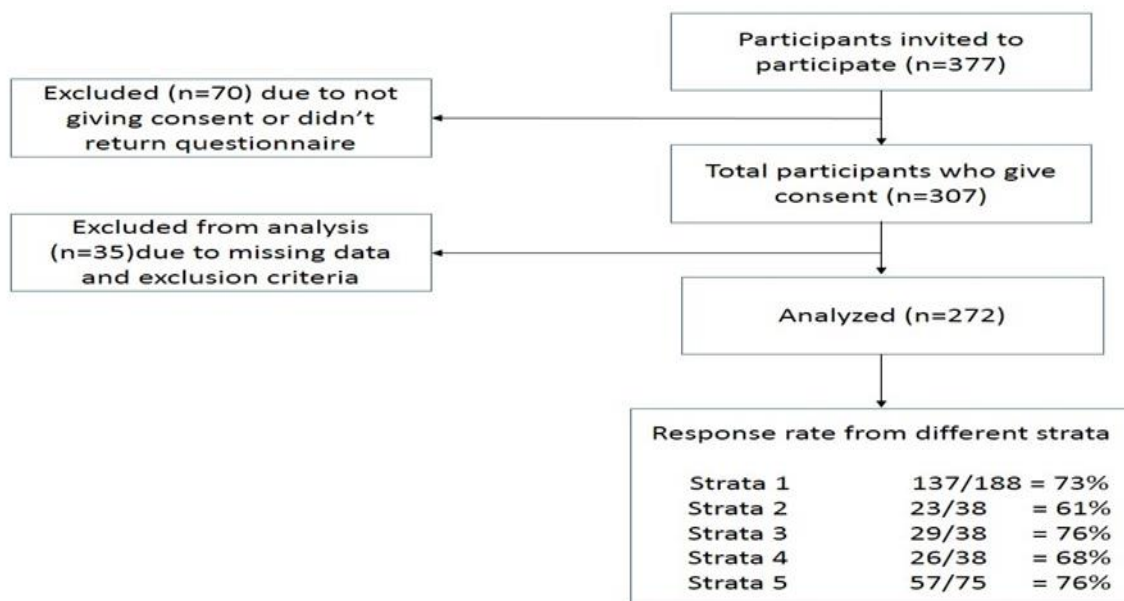
Phase 1: Pilot Study

A pilot study was conducted with 50 participants to assess the psychometric properties of the Urdu-translated Adult Temperament Questionnaire (ATQ) and the Parental Authority Questionnaire (PAQ). After obtaining informed consent, participants completed the questionnaires. Data analysis focused on reliability and internal consistency using Cronbach's alpha. The reliability analysis of the Adult Temperament Questionnaire (ATQ) and Parental Authority Questionnaire indicates that the subscales generally have acceptable internal consistency, as measured by Cronbach's Alpha. For the ATQ, negative affect has a reliability of .704, effortful control has a .781 alpha, extraversion score .821, and orienting Sensitivity has a high reliability of .860. The Parental Authority Questionnaire shows that authoritative parenting (.810), authoritarian parenting (.752), and permissive parenting (.792) all have strong internal consistency, reflecting the reliability of these measures.

Phase 2: Main Study

For the main study, 377 students were randomly sampled from various departments, and they responded very conveniently but some students did not join the survey, and the final analysis was run on 272 participants (see Figure 1 for details). After explaining the research aims and obtaining consent obtained, participants were given a demographic form, the PAQ, and the ATQ to complete. Data was collected by the researcher through in-person visits to each department.

Figure 1: *The Response Rate from Different Strata of Respondents*



Statistical Analysis

The analysis was conducted using SPSS version 27. Cronbach's Alpha assessed the reliability of the scales, and Pearson's Correlation explored the relationships between parenting styles, temperaments, and academic achievement. Multiple regression examined the predictive effects of parenting styles on these outcomes, while model fitness ensured a good fit for the theoretical model, and the significance is given in Table 2.

Ethical Considerations

The study adhered to APA ethical standards. Confidentiality and informed consent were prioritized, ensuring participants' rights and privacy were protected.

Results

The sample included 272 respondents (169 females, 103 males), primarily aged 18-34 years (n=227) and mostly from urban areas (n=210, 77.2%). Most had a nuclear family structure (64%) and were middle-born (43.8%). The majority reported 1-5 siblings (71.7%) and household incomes between 10,000 and 50,000. Academic profiles comprised 160 undergraduates, 85 graduates, and 23 postgraduates, with more from science disciplines (n=163, 59.9%). GPAs showed 139 respondents scored between 70-84%. Parental demographics indicated 66.2% of mothers were literate (n=180) and 90.1% of fathers (n=245). Reliability analysis confirmed good internal consistency for all measures, with Cronbach's Alpha above 0.70 (DiStefano, 2002; Tebachnick, 2013; Fornell & Larcker, 1981).

Table 1: Descriptive Statistics and Correlation among key Variables (n = 272)

Variables	1	2	3	4	5	6	7	8
1. Authoritative	--							
2. Authoritarian	-.42**							
3. Permissive	.11	-.13*						
4. Negative Affect	-.22**	.24**	-.071					
5. Effortful Control	.37**	-.35**	-.09	-.21**				
6. Extraversion	.14*	-.15*	-.15*	-.16**	.14*			
7. Orienting Sensitivity	-.16**	.13*	-.01	.25**	-.10	.04		
8. GPA	.32**	-.23**	-.05	-.07	.11	.01	-.14*	--
M	40.43	31.67	28.26	103.58	78.44	60.29	64.79	73.94
SD	9.22	8.91	7.76	21.62	15.57	13.59	14.09	8.49

** P < 0.01, * P < 0.05

In Table 1, authoritative parenting respondents had a linear relationship with effortful control, extraversion, and academic achievement. It also had an inverse relationship with negative affect and orienting sensitivity temperament. Similarly, authoritarian parenting styles were positively linked with negative affect and orienting sensitivity and were negatively linked with effortful control, extraversion, and academic achievement. The permissive parenting style is only negatively associated with extraversion temperament. This means that low extraversion temperament is found among permissive parenting respondents.

Table 2: Multiple Regression Model to Check the Impact of Parenting Styles on Temperament Dimensions and Academic Achievement

Predictor → Outcome	β	t	P	R²	H	Status
Negative Affect						
Authoritative → Negative Affect	-.14	-2.17	.031	.08	H2a	Supported
Authoritarian → Negative Affect	.18	2.78	.006		H2b	Supported
Permissive → Negative Affect	-.03	-.54	.587		H2c	Not Supported
Effortful Control						
Authoritative → Effortful Control	.28	4.73	.000	.20	H2d	Supported
Authoritarian → Effortful Control	-.25	-4.08	.000		H2e	Supported
Permissive → Effortful Control	-.15	-2.69	.008		H2f	Supported
Extraversion						
Authoritative → Extraversion	.11	1.69	.093	.06	H2g	Not Supported
Authoritarian → Extraversion	-.13	-1.93	.054		H2h	Not Supported
Permissive → Extraversion	-.17	-2.91	.004		H2i	Supported
Orienting Sensitivity						
Authoritative → Orienting Sensitivity	-.13	-1.90	.058	.03	H2j	Not Supported
Authoritarian → Orienting Sensitivity	.08	1.19	.233		H2k	Not Supported
Permissive → Orienting Sensitivity	.02	.32	.749		H2l	Not Supported
Academic Achievement (Parenting)						
Authoritative → Academic Achievement	.28	4.50	.000	.12	H2m	Supported
Authoritarian → Academic Achievement	-.12	-1.88	.061		H2m	Rejected
Permissive → Academic Achievement	-.10	-1.74	.084		H2m	Not Supported
Academic Achievement (Temperament)						
Negative Affect → Academic Achievement	-.02	-.32	.748	.03	H2n	Not Supported
Effortful Control → Academic Achievement	.09	1.44	.151		H2n	Not Supported
Extraversion → Academic Achievement	.00	-.01	.995		H2n	Not Supported
Orienting Sensitivity → Academic Achievement	-.13	-2.09	.038		H2n	Supported

**Note: H = Hypothesis.*

In Table 2, the multiple regression analysis examined the impact of parenting styles on temperament dimensions and academic achievement. For negative affect, authoritative parenting was negatively associated ($\beta = -0.14$, $p = .031$), while authoritarian parenting was positively associated ($\beta = 0.18$, $p = .006$), supporting H2a and H2b, respectively. However, permissive parenting showed no significant effect ($\beta = -0.03$, $p = .587$), leading to the rejection of H2c. In predicting effortful control, authoritative parenting had a significant positive effect ($\beta = 0.28$, $p < .001$), while authoritarian and permissive parenting showed negative associations ($\beta = -0.25$, $p < .001$; $\beta = -0.15$, $p = .008$), supporting H2d, H2e, and H2f. Extraversion was not significantly influenced by authoritative ($\beta = 0.11$, $p = .093$) or authoritarian parenting ($\beta = -0.13$, $p = .054$), but permissive parenting showed a negative association ($\beta = -0.17$, $p = .004$), supporting H2i while rejecting H2g and H2h. Orienting sensitivity was not significantly predicted by any parenting style, leading to the rejection of H2j, H2k, and H2l. Regarding academic achievement, authoritative parenting positively predicted outcomes ($\beta = 0.28$, $p < .001$), supporting H2m, while authoritarian ($\beta = -0.12$, $p = .061$) and permissive parenting ($\beta = -0.10$, $p = .084$) were non-significant predictors, leading to their rejection. When examining temperament dimensions as predictors of

academic achievement, negative affect ($\beta = -0.02$, $p = .748$), effortful control ($\beta = 0.09$, $p = .151$), and extraversion ($\beta = 0.00$, $p = .995$) were all non-significant, resulting in the rejection of H2n for these dimensions. However, orienting sensitivity had a significant negative effect ($\beta = -0.13$, $p = .038$), supporting H2n in this specific case. The variance explained by the models ranged from 3% to 20%, with the highest R^2 observed for effortful control (0.20), suggesting that parenting styles, particularly authoritative and authoritarian approaches, play a substantial role in shaping effortful control and negative affect in children.

Discussion

The current study examined the relationships among parenting styles (authoritative, authoritarian, and permissive), temperaments (negative affect, effortful control, extraversion, and orienting sensitivity), and academic achievement among university students.

Correlation analyses revealed significant relationships between the perceived parenting styles and the four temperament components, as well as academic achievement. Specifically, authoritative parenting positively correlated with effortful control, extraversion, and academic achievement while negatively correlating with negative affect and orienting sensitivity (Yeshua & Berger 2024). In contrast, authoritarian parenting showed positive correlations with negative affect and orienting sensitivity but negative correlations with effortful control, extraversion, and academic achievement. Permissive parenting is negatively correlated with extraversion. These findings align with previous literature (De Haas et al., 1994; Putnam et al., 2002; Van Ijzendoorn, 1995; Yeshua & Berger 2024), indicating that the type of parenting significantly influences a child's temperament and success in academics.

To determine the strongest connections between parenting styles, temperaments, and academic achievement, forward multiple regressions were conducted. The results indicated that authoritative parenting had a significant negative impact on negative affect (sub-hypothesis H2a), while authoritarian parenting had a significant positive impact (sub-hypothesis H2b). The negative impact of permissive parenting was not supported (sub-hypothesis H2c), contrary to earlier findings by Jabeen et al. (2013) and Baumrind (1968). Authoritative parenting creates an atmosphere of support and warmth, which can give rise to lower negative affect among children. Authoritarian parenting stresses control and strict discipline, generating more negative emotion because these parents suppress children's emotional expression (Eisenberg et al., 2004).

For effortful control, authoritative parenting had a positive effect on this temperament (sub-hypothesis H2d), while authoritarian (sub-hypothesis H2e) and permissive parenting (sub-hypothesis H2f) had negative effects. The findings are supported by research by Zhou et al. (2004) and Eisenberg et al. (2003), which observed that positive emotional expressions and responsive parenting practices are essential in the development of children's self-regulation abilities. Supportive and caring parents encourage their children to control impulses effectively, thereby effortful control.

For extraversion, perceived permissive parenting was inversely correlated with this temperament (sub-hypothesis H2i), whereas authoritative (sub-hypothesis H2g) and authoritarian parenting (sub-hypothesis H2h) did not have any effect, contrary to previous research (Desjardins et al., 2008; Metsäpelto & Pulkkinen, 2003). The absence of powerful effects of authoritative and authoritarian parenting on extraversion might perhaps imply that peer relationships and social settings might more easily be affected by children's temperament than parental control (Sun & Wilkinson, 2020). In addition, emotionally unresponsive interaction common in permissive

parenting can cause children to become insecure and hence contribute to lower rates of social interaction.

When it comes to orienting sensitivity, no significant parenting style effects were found in the study (sub-hypothesis H2j, H2k, H2l), meaning other variables may mediate these relationships (Erozkan, 2012; Belsky et al., 1995; DeYoung et al., 2005). This suggests a larger context encompassing life experience and environmental factors may be more influential on orienting sensitivity than parenting styles (Lionetti & Pluess 2024). At an achievement level, authoritarian parenting highly contributed to the positive achievement of the students (sub-hypothesis H2m), while that of permissive (sub-hypothesis H2n) and authoritarian patterns did not highly contribute to poor achievement. This supports the conclusions of Spera (2005) and Oyserman (2013), that parents who used high expectations with warm parenting had students with better achievements. The findings indicate that authoritative parents create a school-friendly environment, but authoritarian and permissive parenting lack support for academic achievement (Yang & Zhao 2020).

Lastly, the temperament-achievement interaction revealed that negatively orienting sensitivity had a negative impact on achievement (sub-hypothesis H2n) but that effects of negative affect (sub-hypothesis H2n), effortful control, and extraversion were not significant. This aligns with evidence for effortful control and self-regulation contributions to academic achievement (Laidra et al., 2007; Chamorro & Furnham, 2003; Véronneau et al., 2014). The adverse effect of orienting sensitivity indicates that increased sensitivity may result in difficulty focusing on schoolwork, which can interfere with achievement (Fox et al., 2023; Tuominen et al., 2020).

Overall, the research captures the intricate dance between parenting, temperaments, and academic performance and implies that differential styles of parenting have a critical impact on developmental outcomes. The research captures the essence of authoritative parenting in the emergence of favorable temperaments and academic performance and also proposes that more research needs to be conducted to grasp mediating and moderating variables in such relationships.

Limitations, Future Research Directions, and Recommendations

Even though there are several implications and strengths of this work, the study's sample was limited to one university, with students from various cities across Pakistan, enhancing generalizability. However, reliance on students' perspectives excluded parental input, potentially limiting accuracy. Self-reported GPAs may introduce bias, suggesting future studies obtain official records. The use of self-reported measures also raises the risk of social desirability bias, highlighting the need for multiple assessment methods. The study did not account for mediating factors like demographics, birth order, or gender, nor did it compare provinces or cities. Future research should examine these variables and include diverse populations to assess broader applicability. Additionally, external influences such as teachers, peers, and the social environment were not explored, warranting further research using qualitative and cross-cultural approaches to provide a more comprehensive understanding.

Theoretical and Managerial Implications

The research focuses on the long-term implications of parenting style on academic success, in relation to parental involvement in the educational process of the students. Parenting styles in accordance with temperament can be employed to improve performance, promoting the use of particular strategies according to differences. The research also brings to light parental and institutional intervention towards curbing oppositional temperament characteristics that otherwise

can hinder success. Also to be taken into consideration is parental mental health, since this influences their capacity to support. From the policy point of view, universities can incorporate parent involvement programs into academic planning in a bid to foster student success.

Conclusion

University students seem to reach the foremost educational institute where academic achievement is a matter of great importance. Thus, having strong underlying foundations of good temperament and positive parenting style results in the outperformance of students. The current research dictated this aspect by its empirical findings. An authoritative parenting style leads to high and greater academic achievement, while other parenting styles proved insignificant in determining the academic achievement of students. Literature supports it as authoritative parenting styles are mostly associated with higher student attainment levels (Spera, 2005). In the students' temperament context, students having more orienting sensitive temperament got the less academic achievement. In contrast, other focused temperaments don't impact academic achievement.

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